

V.—Report on the Polyzoa of the Queen Charlotte Islands.
By the Rev. THOMAS HINCKS, B.A., F.R.S.

[Continued from vol. xi. p. 451.]

[Plates III. & IV.]

• LEPRALIA (part.), Johnston.

Lepralia bilabiata, n. sp. (Pl. III. fig. 1.)

Zoecia quincuncially arranged, short, very slightly convex, the sutures little more than incised lines, rounded above (where the cell-wall forms a distinct border round the orifice), widening out at each side, and narrowing off towards the base, which is subtruncate or pointed; surface dense, smooth, of a somewhat waxy appearance and a dark brown colour; orifice large, occupying nearly half of the front surface, rounded above, slightly contracted a short distance above the lower margin, which is arched outwards; peristome unarmed, not elevated; operculum smooth, of a deep black colour, with a slight rim round the edge, the inner surface attached to a bilabiate tubular passage (Pl. III. fig. 1 *b*), through which the polypide issues. *Avicularia* none. *Oecium* a subtriangular extension of the cell above the orifice, very little raised, a great part of its front surface occupied by a large foramen, closed in by membrano-chitinous material (Pl. III. fig. 1 *a*).

Zoarium of a very dark brown colour (almost black).

Houston-Stewart Channel, on shells.

When the zoecium is open, the orifice is occupied in great part by the entrance to a tubular passage, through which the polypide issues; this entrance is bilabiate, the lower lip consisting of a semicircular chitinous rim, as it were soldered to the inner surface of the operculum; the upper or opposed lip, also chitinous, is movable, and closes upon the opercular lip when the polypide retreats.

The structure of the ovicell in this species is peculiar; it consists of a short extension of the cell upwards, the front wall of which is much depressed, and bears a large foramen, with a chitinous lid or covering. The oöcial chamber is small, and the entrance to it is closed by the operculum of the cell. This is a very distinct modification of the ordinary form of oöcium.

L. bilabiata is luxuriant in growth, and forms very large spreading crusts.

Lepralia claviculata, n. sp. (Pl. III. fig. 2.)

Zoëcia ovate or lozenge-shaped (sometimes irregular in shape and size), regularly quincuncial, depressed; surface glossy, thickly covered with minute circular punctures, which give it a pretty speckled appearance; orifice arched and expanded above, more or less narrowed downwards, contracted by a small acute projection on each side just above the lower margin, which is distinctly curved; peristome not raised. *Avicularia* keyhole-shaped, placed on a distinct area, very much smaller than that of the cell, sometimes immediately above a zoëcium, more commonly in the angle between two zoëcia; mandible directed upwards. *Oæcium* (fig. 2 a) very large, higher than broad, depressed towards the opening, and often grooved longitudinally above the oral arch, rising above into a kind of central knob (but on the whole not much elevated), white, glossy, thickly punctured.

Zoarium forming large, spreading, whitish crusts.

Houston-Stewart Channel; Cumshewa, 20 fms.

Cases occur in which the avicularium is situated on an area almost as large as that of the cells, just below the upper extremity, occupying, in fact, the position of the oral aperture. Occasionally two of these appendages occur together, either placed one above the other or side by side.

PORELLA, Gray.

Porella concinna, Busk.

Cumshewa, on shell.

[Britain, Adriatic, Finmark, Norway, Spitzbergen, Franz-Josef Land (*Ridley*), Greenland, Gulf of St. Lawrence, Bass's Straits.]

A beautiful variety occurs in which the whole surface of the cell, except the umbo below the orifice, is covered with rather large punctures; the orifice is ample, and its characteristic features are very distinctly marked. The zoarium is white, and delicate in texture.

Porella marsupium, MacGillivray, form *porifera*.
(Pl. IV. fig. 4.)

This species, which is a common Australian form, occurs abundantly amongst the dredgings. The specimens from the Queen Charlotte Islands differ from those which I have examined from Bass's Straits in one or two points, but they are quite unimportant. On the front of the suboral swelling, which supports the avicularium, are two (or occasionally three)

rather large circular pores, placed side by side. They give a somewhat peculiar appearance to the cell, but do not seem to have any special significance. Frequently too there is a small raised oval avicularium on the front of the cell, besides the oral avicularium, which I have not noticed on Australian specimens. The cell-wall is smooth and entire; the oecium is traversed by delicate radiating lines.

Extremely common, on shells &c.

[Victoria (*MacGillivray*); Bass's Straits (*Capt. Cawne Warren*).]

The species described by Mr. Ridley from the Straits of Magellan (Proc. Zool. Soc. Jan. 4, 1881) as *Schizoporella marsupium*, and identified by him with MacGillivray's *Lepralia marsupium*, is, I have no doubt, the *Escharina simplex* of D'Orbigny ('Voyage dans l'Amérique Mérid.'), obtained from "les Îles Malouines." MacGillivray, who has found this species in Victoria, has named it *Schizoporella Ridleyi* (Proc. Roy. Soc. Victoria, Oct. 12, 1882).

We have no alternative, however, but to revert to the earlier designation, and it must stand as *Schizoporella simplex*, D'Orb.

Porella major, n. sp. (Pl. IV. fig. 5.)

Zoecia ovate or (sometimes) hexagonal, somewhat elongate, quincuncial, rather depressed, sutures shallow, often with a line of punctures round the margin; surface smooth or slightly roughened, glossy; orifice arched above, lower margin curved inwards, so as almost to appear dentate; peristome thin, unarmed, elevated (in the adult cell), especially above, immediately below the orifice a narrow avicularian swelling, stretching across the front of the cell and bearing in the centre a small oval *avicularium*, mandible directed downwards. *Oecium* rounded, moderately prominent, surface minutely roughened, the peristome forming a raised rim round the oral arch.

Zoarium of a very light brownish colour.

Cumshewa; Houston-Stewart Channel, common on shells.

SMITTIA, Hincks.

Smittia trispinosa, Johnston.

Houston-Stewart Channel; off Cumshewa; Virago Sound: abundant.

[Britain, Norway, Arctic regions, St. Lawrence, Mingan Islands, Florida, Mazatlan, Cape Horn, Aden, Adriatic, East Indies (*Dr. Anderson*), Bass's Straits.]

Several varieties occur. As a rule, the avicularian appendages are present in great profusion and of unusual size.

Smittia plicata, Smitt.

Houston-Stewart Channel ; off Cumshewa, 20 fms. : not uncommon.

[Spitzbergen, Greenland, 100 fms., Godhavn Harbour, Disco.]

The form which I refer to Smitt's *Cellepora plicata* differs slightly from the description and figures given by that author ; but in essential particulars, I believe, it agrees with them. In the specimens from the Queen Charlotte Islands the avicularium is well within the peristome, and there is little if any trace of the umbo, on which, according to Smitt, it is placed in his *C. plicata*. This, however, may be due to the greater development of the peristome, by which the umbo may have been to a large extent concealed. The cells are often invested by a membranous epitheca.

Smittia spathulifera, n. sp. (Pl. IV. fig. 3.)

Zoecia large, ovate, quincuncially arranged, very moderately convex, bordered by delicate raised lines ; surface covered with rather large round punctures, which, however, are in great measure concealed by the stout epitheca that clothes the zoarium ; orifice arched above, lower margin straight and within it a large bifid tooth ; peristome much raised (especially above) forming an elongate secondary orifice, produced below into a spout-like sinus, which is occupied by a spatulate *avicularium* ; mandible directed downwards. *Oæcium* large, immersed, closely united to the cell above ; surface roughened, punctured round the edge. *Zoarium* forming a brownish crust.

Houston-Stewart Channel.

MUCRONELLA, Hincks.

Mucronella ventricosa, Hassall.

Virago Sound, in about 20 fms., on shells.

[Britain, France (S.W.), Mediterranean, New Zealand, Bergen, Greenland, Nova Zembla, Kara Sea.]

Mucronella pavonella, Alder.

Virago Sound.

[St. Lawrence, Greenland, Nova Zembla, Spitzbergen, Finmark, off Jutland, Britain (north-east).]

Mucronella prælucida, n. sp. (Pl. IV. fig. 1.)

Zoecia large, ovate, quincuncial, slightly convex, separated

by raised lines; surface thickly covered with roundish punctures, lustrous; orifice arched above, lower margin straight (without denticles), peristome raised, especially at the back and in front, where it rises in the centre into a blunt mucronate projection, which bends slightly inwards; the surface of the peristome smooth, entire, and very glossy. *Avicularia* none. *Oœcium* (?).

Houston-Stewart Channel, not uncommon on shells.

Mucronella prælonga, n. sp. (Pl. IV. fig. 2.)

Zoœcia long and (usually) slender, quincuncially disposed, somewhat wider above than at the base (elongate-ovate, sometimes appearing almost subtubular), convex, depressed below, rising towards the oral extremity; surface thickly covered with minute punctures, shining (the glistening appearance due to the presence of an epitheca); orifice suborbicular, peristome elevated round it, carried out in front into a very prominent process, often much thrown back and greatly elongated, sometimes simply pointed, sometimes bi- or trimucronate, on the inner side of it near the base a single, small, sharply-pointed denticle; the upper margin produced in the centre into a tall spinous process, broad at the base, attenuated and membrano-calcareous above. *Avicularia* none. *Oœcium* (?). *Zoarium* forming a whitish subcircular crust.

Houston-Stewart Channel, on shell.

A very picturesque form, distinguished by the remarkable processes on the upper and inferior margins of the peristome. The mucro in front is sometimes very greatly elongated, and, in such cases, the upper portion seems to be formed of very delicate membrano-calcareous material. The spinous extension of the peristome on the upper margin, which is much attenuated above, is also made up, to a great extent, of similar material. The subtubular character of the zoœcia is a striking feature, though occasionally, and especially near the growing edge of the colony, they assume a more distinctly ovate form.

Mucronella spinosissima, Hincks, form *major*.
(Pl. III. fig. 3.)

Zoœcia broad-ovate, short, arranged in quincunx, very convex, sutures deep, surface smooth, subhyaline in the younger cells, opaque in the older, a number of slender tubules immersed in the cell-wall immediately beneath the surface, and radiating from the margin towards the centre, the aperture opening out apparently on the surface, but closed by a calcareous diaphragm; the oral extremity of the cell much

raised, contracted, suberect, forming a neck which bears the orifice; orifice suborbicular, a small mucronate projection in the centre of the lower margin, the rest of the peristome occupied by 6-10 tubular spinous processes, a denticle within the peristome on the lower primary margin. *Avicularia* none. *Oeciium* (fig. 3*b*) rounded, developed behind the neck-like peristome (the orifice, with its full armature of spines, rising before it), sometimes traversed by a number of the immersed tubules. *Primary cell* (fig. 3*a*) small, ovate; aperture occupying about two thirds of the front surface, surrounded by a raised border, which bears about 8-10 spines; the orifice nearly semicircular, occupying the upper portion of the aperture, the lower part closed in by a delicate membrano-calcareous covering; portion of the cell below the aperture smooth and solid.

Zoarium forming very large cream-coloured crusts on shells.

Extremely abundant; probably the commonest species amongst Dr. Dawson's dredgings.

[Bass's Straits (*Capt. Cawne Warren*).]

I have ranked this interesting form as a variety of *M. spinosissima*, a species which I have described and figured in my report on the Polyzoa of Bass's Straits ('Annals' for Aug. 1881). In all the principal elements of structure there is an exact correspondence between the two; but there are also one or two differences, which materially affect the general appearance, and, at the first glance, few probably would be likely to identify them. In the present variety the cells are very much larger than those of the Australian form. The latter are small and delicate, while those of the variety *major* are ample, broadly ovate, massive, and strongly built. But the chief difference between them lies in the system of tubules, more or less immersed in the cell-wall and showing as white striæ on the glossy surface, which gives so distinctive a character to the North-Pacific form. Of this tubular structure I have been unable to detect any trace in the Australian specimens which I have examined. Possibly the condition of the stony crust may be such as to conceal it; but this hardly seems probable, as in the finest colony which has come under my notice calcification has evidently not proceeded far. It may also be noted that the cells of the Australian variety have a well-marked row of punctures round the margin.

At present, looking to the close structural agreement between the two forms, and in the absence of any precise knowledge as to the development and function of the tubules, I prefer to include them in one specific group.

The tubules appear as delicate white lines through the subhyaline crust, radiating from the circumference towards

the centre of the zoëcium. They vary much in length, some being almost rudimentary, and others extending nearly or quite to the centre of the cell. Not unfrequently short tubes alternate with the longer ones; and commonly the latter seem to be composed of several short tubules, which originate one from the other, a little below and behind the orifice. In the younger zoëcia the tubules are, I believe, *on the surface*; but they are soon overgrown by the calcareous crust, and in older states they are completely concealed by it. In highly calcified colonies this feature disappears, and the cells present a uniform opaque surface. The tubules traverse the neck-like portion of the cell, and the numerous oral spines seem to be nothing more or less than their free extremities projecting beyond the margin of the peristome.

It is difficult to form a conjecture as to the precise import of the tubular system, and the more so as there has been no opportunity thus far of tracing the growth of the cell-wall and the mode in which the tubules originate.

The primary cell of *Mucronella spinosissima* closely resembles that of *M. Peachii*.

RETEPORA, Imperato.

Retepora Wallichiana, Hincks.

Houston-Stewart Channel, 15–20 fms.

[Spitzbergen, 20–80 fms., Finmark, Godhaab, 150 fms.]

This form was first described by Smitt* as a variety of *R. notopachys*, Busk, a Crag fossil. Some years later the examination of specimens obtained by Dr. Wallich in Davis Straits convinced me that it was a distinct species, and it was accordingly described as such ('Annals' for Jan. 1877, p. 107), with the name which Mr. Busk had already assigned to it in MS.

R. Wallichiana, when fully developed, forms intricate convoluted and chambered masses of considerable size. It is one of the many arctic species which have migrated to the Queen Charlotte Islands.

Family Celleporidæ.

CELLEPORA (part.), Fabricius.

Cellepora incrassata, Lamarek.

Houston-Stewart Channel; Virago Sound, incrusting the stems of Hydrozoa.

* "Kritisk förteckn. öfver Skandinavien's Hafs-Bryozoer," Öfvers. Kongl. Vetensk. Akad. Förhandl. 1867, Bihang.

[Finmark, Spitzbergen, Greenland, Banks of Newfoundland.]

Cellepora, ? sp.

Zoarium incrusting, of a rather dark brown colour. *Zoecia* (towards the centre of the colony) erect, crowded, barrel-shaped, some elevated, some immersed; surface smooth, more or less punctured round the margin; orifice arched above, lower margin slightly curved outwards (suborbicular), and having in the centre a small notch, rounded below and contracted at the opening by two minute denticular projections; operculum arched above, straight and entire below; peristome raised in front, embracing a short and stout rostrum, placed immediately below the oral notch, and bearing an *avicularium* on one side close to the top, with rounded mandible directed upwards; two very tall articulated marginal spines, placed one on each side of the orifice above. Large *avicularia* scattered amongst the cells with a broad subspatulate mandible, the beak elevated at the extremity into a hood-like projection, not denticulate. *Oæcium* (?).

Incrusting *Retepora* and shells.

I cannot identify this form with any of the described species known to me; but I am by no means prepared at present to say that it is new to science. It does not appear (so far as I can judge in the absence of the figures) to be included amongst the 'Challenger' *Celleporæ* characterized by Busk (Journ. Linn. Soc. vol. xv. 1881, p. 341, &c.). If it should prove to be (as I suspect) undescribed, I should propose for it the name of *Cellepora brunnea*.

ADDITIONAL.

Family *Porinidæ*.

LAGENIPORA, Hincks.

This genus, as originally constituted*, was formed for a *Porinidan* species in which the cells are more or less immersed in a calcareous crust. But I am now convinced that this character cannot properly be made the foundation of a generic group, and I propose to apply the name to such forms as possess a lageniform cell with a free orbicular orifice and are destitute of a special pore. The original type of the genus, *L. socialis* mihi, will hold a place in the reconstituted group,

* 'Annals' for September 1877; 'Hist. Brit. Marine Polyzoa,' vol. i. p. 235.

along with *Phylactella lucida* mihi, a Madeiran species (see 'Annals' for July 1880), and a kindred form from the Queen Charlotte Islands, which I shall now describe.

Lagenipora spinulosa, n. sp. (Pl. III. fig. 4.)

Zoecia lageniform, rather irregularly disposed, the lower portion adherent, ovate, thickly covered with punctures (sometimes almost obliterated, when the surface appears roughened or subgranulous); the oral extremity free, tubular, much produced, suberect, the surface perfectly smooth and subhyaline, slightly expanded upwards; orifice terminal, suborbicular, the front margin plain or trimucronate, and more or less elevated above the rest, somewhat everted, on each side a raised process bearing a small *avicularium* of the *Scrupocellaria* type, with minute pointed mandible directed outwards, on the upper (or hinder) margin several spinous processes. *Oeciium* small, rounded, smooth, placed far down at the back of the tubular portion of the cell.

Zoarium forming small lobate patches.

On *Tubulipora* (especially) and shells; not uncommon.

This form is nearly related to *L. lucida*, mihi, but is, I have no doubt, distinct. There is a marked difference between the *avicularia* of the two species. In *L. spinulosa* there are two, one on each side of the orifice, resembling very closely the form which is characteristic of the genus *Scrupocellaria*. In *L. lucida* there is only a single minute, oval *avicularium*, which is borne on a stout process, in the centre of the lower margin. *L. spinulosa* is altogether stouter in habit than the Madeiran species, and in the normal state the adherent portion of the cell is thickly punctured, whereas it is entire and smooth and subhyaline in the latter. It differs from *L. lucida* in another point. On each side of the free tubular portion of the cell there is a very distinct line, running the whole length of it, which seems to mark the junction between the front piece and the rest of the tube. The strongly marked groove at the base of the neck-like extension in *L. lucida* is wanting in the present form, which is also characterized by a peculiar habit of growth.

Microporella Malusii, Audouin.

A variety of this species occurs, in which there is a very prominent umbo below the pore.

Schizoporella biapertura, Michelin.

In a variety of this widely distributed species from the

Queen Charlotte Islands the lateral avicularia have a pointed mandible instead of the normal rounded one. Smitt has noticed the same thing in Floridan specimens.

EXPLANATION OF THE PLATES.

PLATE III.

- Fig. 1.* *Lepralia bilabiata*, n. sp. 1 *a.* A zoecium with ovicell. 1 *b.* Zoecium with the operculum thrown back, showing the entrance to the tubular passage.
Fig. 2. *Lepralia claviculata*, n. sp. 2 *a.* Ooecium.
Fig. 3. *Mucronella spinosissima*, Hincks, form *major*; group of cells, showing the tubules in the front wall. 3 *a.* Primary cell. 3 *b.* Zoecium, showing the position of the ovicell behind the tubular orifice.
Fig. 4. *Lagenipora spinulosa*, n. sp.

PLATE IV.

- Fig. 1.* *Mucronella prælucida*, n. sp.
Fig. 2. *Mucronella prælouga*, n. sp.
Fig. 3. *Smittia spathulifera*, n. sp.
Fig. 4. *Porella marsupium*, MacGillivray, form *porifera*.
Fig. 5. *Porella major*, n. sp.

VI.—*Lepidoptera* from the Island of Nias.

By ARTHUR G. BUTLER, F.L.S., F.Z.S., &c.

THE following species from the Island of Nias have recently been added to the collection of the British Museum:—

EUPLÆINÆ.

Caduga funeralis, sp. n.

Nearly allied to *C. Banksii*, Moore (from Sumatra), but differing much as *Purantica eryx* does from *P. agleoides*, the wings being of a narrower and more elegant form, with the whole of the greenish-white markings much narrower; the abdomen a little browner. Expanse of wings 86 millim.

Salatura eurydice, sp. n.

Primaries above most like *S. nubila* of Gilolo, but the reddish area of the primaries of a lurid mahogany-red colour, more restricted, divided into three well-marked areoles by the median vein and its first branch, which are very broadly black-bordered, and bounded on costa and inner margin by